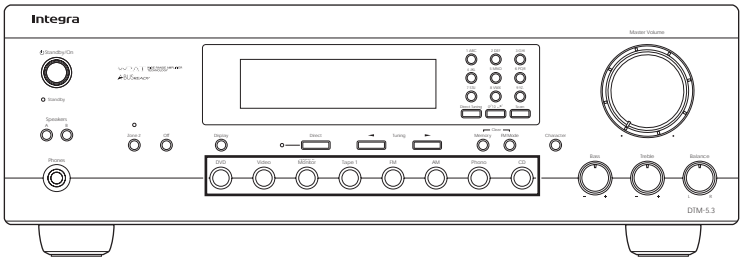
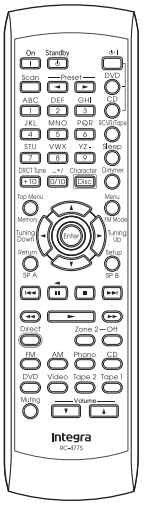
Ref. No. 3729

Integra SERVICE MANUAL

Apl., 2002

AV RECEIVER
MODEL DTM-5.3





RC-477S

Black model

BMDD	120V AC, 60Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

SPECIFICATIONS

AMPLIFIER SECTION

Power Output: 100 Watts per channel, min RMS, at 8 ohms, both channels driven from 20 Hz to 20 kHz, with no more than 0.08% THD.

Dynamic power output: 2 · 170 Watts at 2 ohms
2 · 135 Watts at 4 ohms
2 · 140 Watts at 8 ohms

Total Harmonic Distortion: 0.08% at rated power
0.08% at 1 watt output

IM Distortion: 0.08% at rated power
0.08% at 1 watt output

Damping Factor: 60 at 8 ohms

Input Sensitivity and Impedance
- PHONO: 2.5 mV, 50 kohms
- Line (CD, TAPE-1, 2, VIDEO, DVD): 150 mV, 50 kohms
- Video (VIDEO, DVD) 1 Vp-p, 75 ohms

Output Level and Impedance
- Line (TAPE-1, 2, VIDEO): 150 mV, 2.2 kohms
- Video (VIDEO, MONITOR): 1 Vp-p, 75 ohms
- Zone 2: 150 mV, 22 kohms

Phono Overload: 120 mV RMS. at 1 kHz, 0.5% T.H.D.

Frequency Response: 20 Hz to 30 kHz : ±1 dB

RIAA Deviation: 20 Hz to 20 kHz : ±0.8 dB

Tone Control
- Bass: ±10 dB at 100 Hz
- Treble: ±10 dB at 10,000 Hz

Signal-to-Noise Ratio
- Phono: 80 dB (IHF A, 5 mV input)
- CD/Tape: 100 dB (IHF A)

Muting: -50dB

TUNER SECTION

FM

Tuning Range: 87.5 to 108.0 MHz (100 kHz steps)

Usable Sensitivity
- Mono: 11.2 dBf, 1.0 µV (75 ohms IHF)
  0.9 µV (75 ohms DIN)
- Stereo: 17.2 dBf, 2.0 µV (75 ohms IHF)
  23 µV (75 ohms DIN)

50 dB Quieting Sensitivity
- Mono: 17.2 dBf, 2.0 µV (75 ohms)
- Stereo: 37.2 dBf, 20 µV (75 ohms)

Capture Ratio: 2.0 dB

Image Rejection Ratio: 40 dB

IF Rejection Ratio: 90 dB

Signal-to-Noise Ratio
- Mono: 76 dB, IHF
- Stereo: 70 dB, IHF

Alternate Channel Att. (±400 kHz)
- Mono: 55 dB, IHF

Selectivity: 55 dB DIN (±300 kHz 40 kHz Devi.)

AM Suppression Ratio: 50 dB

Total Harmonic Distortion
- Mono: 0.15%
- Stereo: 0.25%

Frequency Response: 30 Hz to 15 kHz, ±1.5 dB

Stereo Separation: 45 dB at 1 kHz
30 dB at 100 Hz to 10 kHz

Stereo Threshold: 17.2 dBf, 2.0 µV (75 ohms)

AM

Tuning Range: 530 to 1,710 kHz (10 kHz steps)

Usable Sensitivity: 30 µV

Image Rejection Ratio: 40 dB

IF Rejection Ratio: 40 dB

Signal-to-Noise Ratio: 40 dB

Total Harmonic Distortion: 0.7%

GENERAL

Power Supply: AC 120 V, 60 Hz

Power Consumption: 2.8 A

Dimensions (W · H · D): 17-1/8" · 5-7/8" · 13-7/16"
435 · 150 · 341 mm

Weight: 19.8 lbs. (9.0 kg)

REMOTE CONTROLLER (RC-477S)

Transmitter: Infrared

Signal range: Approx. 16 ft., 5 meters

Power supply: Two "AA" batteries (1.5 V · 2)

Specifications and features are subject to change without notice.

SERVICE PROCEDURES

1. Replacing the fuses

This symbol located near the fuses indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating refer to the marking adjacent to the symbol.

Ce symbole indique que le fusible utlise est a rapide. Pour une protection permanente, n'untiliser que fusibles de meme type. Ce darnier est la qu le present symbol est appse.

CIRCUIT NO.	PART NO.	DESCRIPTION
F901	252258 or 252164	5A-T/UL-ST2 or 5A-UL/T-237

2. To initialize the unit

This device employs a microprocessor to perform various functions and operations. If interference generated by an external power supply, radio wave, or other electrical source results in accident which causes the specified operations and functions to operate abnormally.
To perform a result, please follow the procedure below.

1.Press and hold down the DVD button, then press the Speakers A button.
2.After "CLEAR" is displayed, the preset memory and each mode stored in the memory, such as surround, are initialized and will return to the factory setting.
Unplug the power supply cord from outlet.

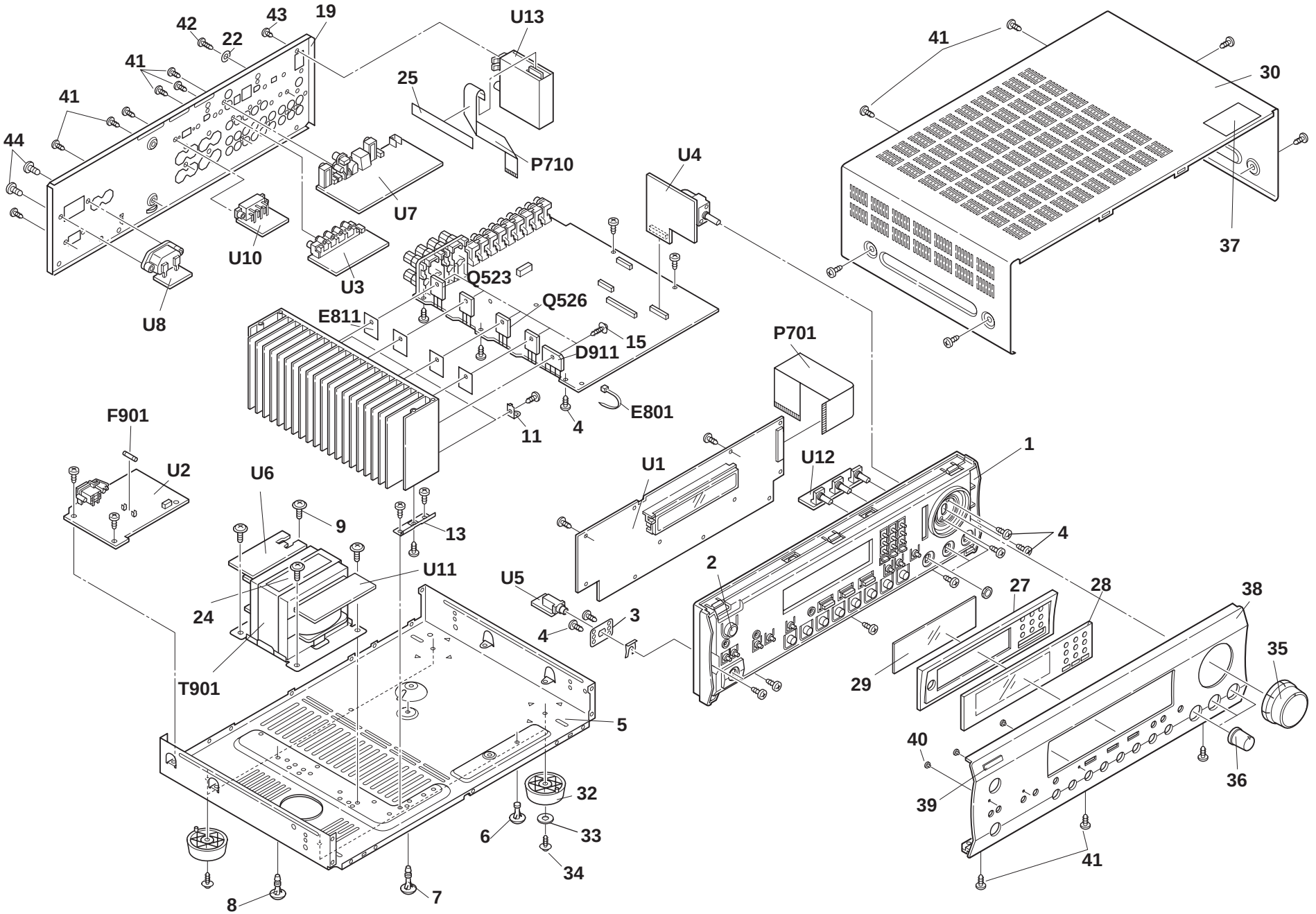
3. Safety-check out

After correcting the original service problem, perform the following safety check before releasing the set to the customer.
Connect the insulating-resistance tester between the plug of power supply cord and screw on the back panel.
Specifications: 3.3Mohm+/-10% at 500V.

4. Memory Preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves the contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in order to charge the back-up system.
The memory preservation period after the unit has been unplugged varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of a few weeks after the last time the unit has been unplugged. This period is shorter when the unit is exposed to a highly humid climate.

EXPLODED VIEW

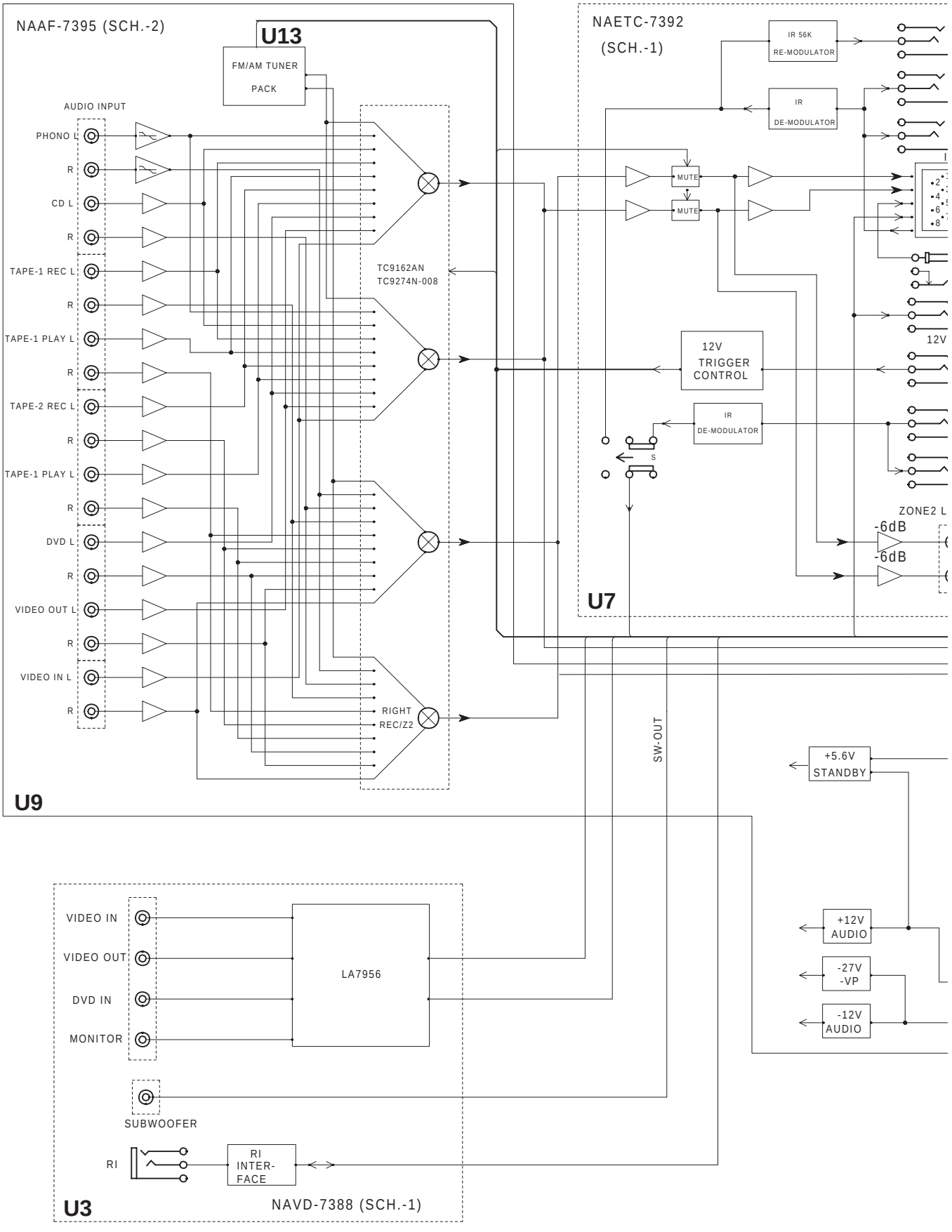


EXPLODED VIEW

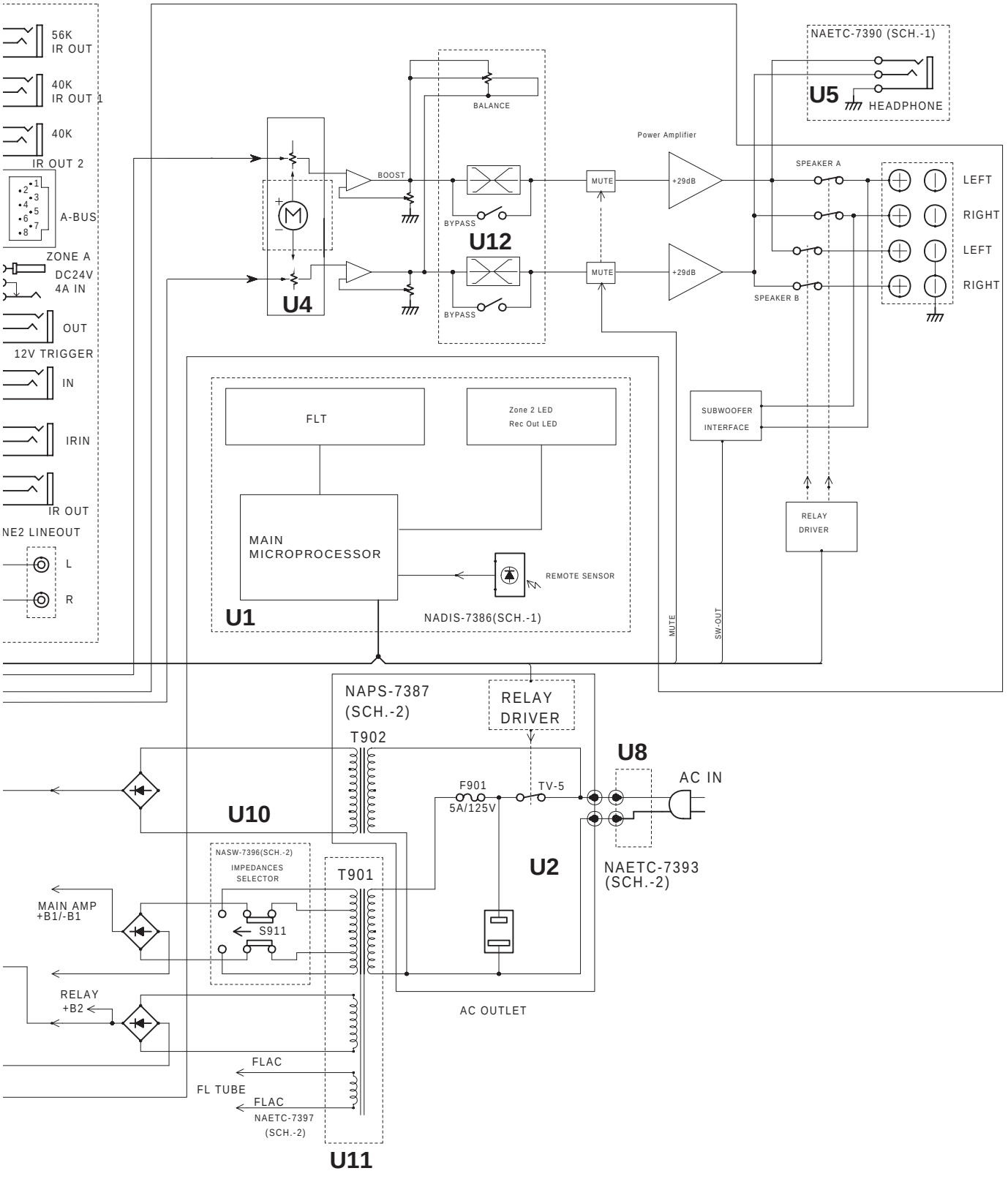
PARTS LIST

REF.NO.	PART NO.		DESCRIPTION
1	27111267		Front bracket
2	28325756		Knob, standby
3	27141787		Retainer HP
4	838130088		3TTB+8B,Self-tapping screw
5	27100321B		Chassis
6	27190991		Holder
7	27190511		KGLS-16RF,Holder
8	27190266		KGLS-12RF,Holder
9	830440089		4TTC+8C(BC),Self-tapping screw
10	27160379		Heat sink
11	27141530A		Retainer HS-2
13	27141671		Retainer
15	801433		3SMS8W.SW+14B(BC),Special screw
19	27122952		Rear panel
22	87643010		W3*10F(BC),Flat washer
24	29362609		Label PT
25	29110083		Tape, cloth
27	27191166		Holder, plate
28	28191956		Clear plate
29	28133401		Back plate
30	28184663-1		Top cover
32	27175319B		Leg
33	28141332		Cushion
34	831430088		3TTW+8B(BC),Self-tapping screw
35	28325984		Knob, volume
36	28325405		Knob, tone
37	29362772		Label, cover
38	27212367		Front panel
39	28135278		Badge
40	28198905		Facet
41	838430088		3TTB+8B(BC),Self-tapping screw
42	838930088		3TTB+8B(UN),Self-tapping screw
43	838430068		3TTB+6B(BC),Self-tapping screw
44	838440089		4TTB+8C(BC),Self-tapping screw
D911	22380130,		D5SBA20,
	22380274 or		RS603M or
	22380038		RBV602,Diode
E801	260208		Wire tie
E811	223025		AC262,Isolated plate
F901	252258 or	!	5A-T/UL-ST2 or
	252164	!	5A-UL/T-237,Fuse
P701	2047332012		NCFC7-332012,FF cable
P710	2047152012		NCFC7-152012,FF cable
Q523,Q524	2202823	*	2SC5200-O or
	2202822	*	2SC5200-R,Transistor
Q525,Q526	2202813 or	*	2SA1943-O or
	2202812	*	2SA1943-R
T901	2301216	!	NPT-1281D,Power transformer
U1	1A137586-1A		NADIS-7386-1A,Display circuit PC board ass'y
U2	1A137587-1A		NAPS-7387-1A,Primary circuit PC board ass'y
U3	1A137588-1A		NAVD-7388-1A,Video terminal PC board ass'y
U4	1A137589-1A		NAETC-7389-1A,Volume PC board ass'y
U5	1A137590-1A		NAETC-7390-1A,Headphone terminal PC board ass'y
U6	1A137591-1A		NAETC-7391-1A,Terminal PC board ass'y
U7	1A137592-1A		NAETC-7392-1A,Control terminal PC board ass'y
U8	1A137593-1A		NAETC-7393-1A,AC inlet PC board ass'y
U9	1A137595-1A		NAAF-7395-1A,Main circuit PC board ass'y
U10	1A137596-1A		NASW-7396-1A,Impedance switch PC board ass'y

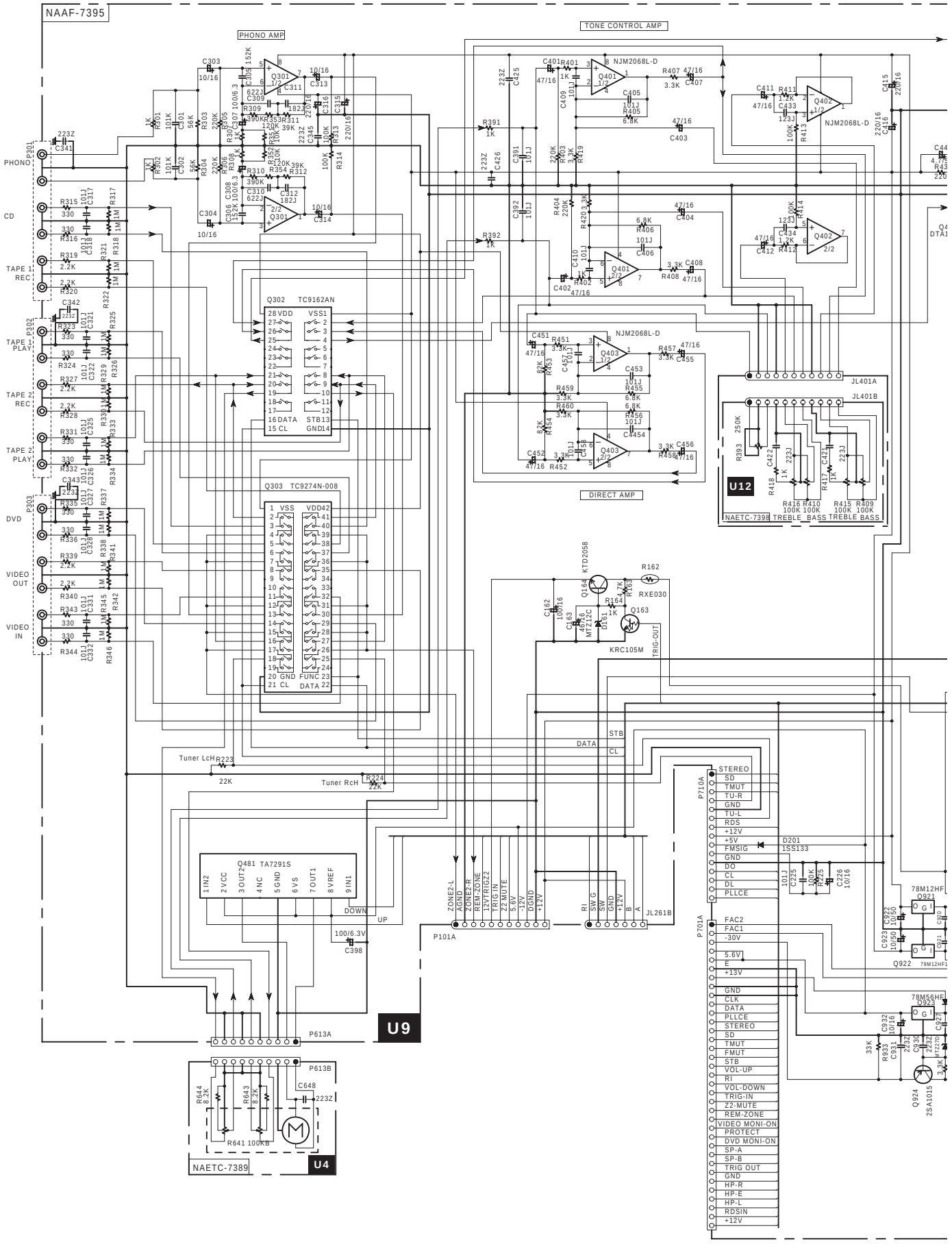
BLOCK DIAGRAM 1



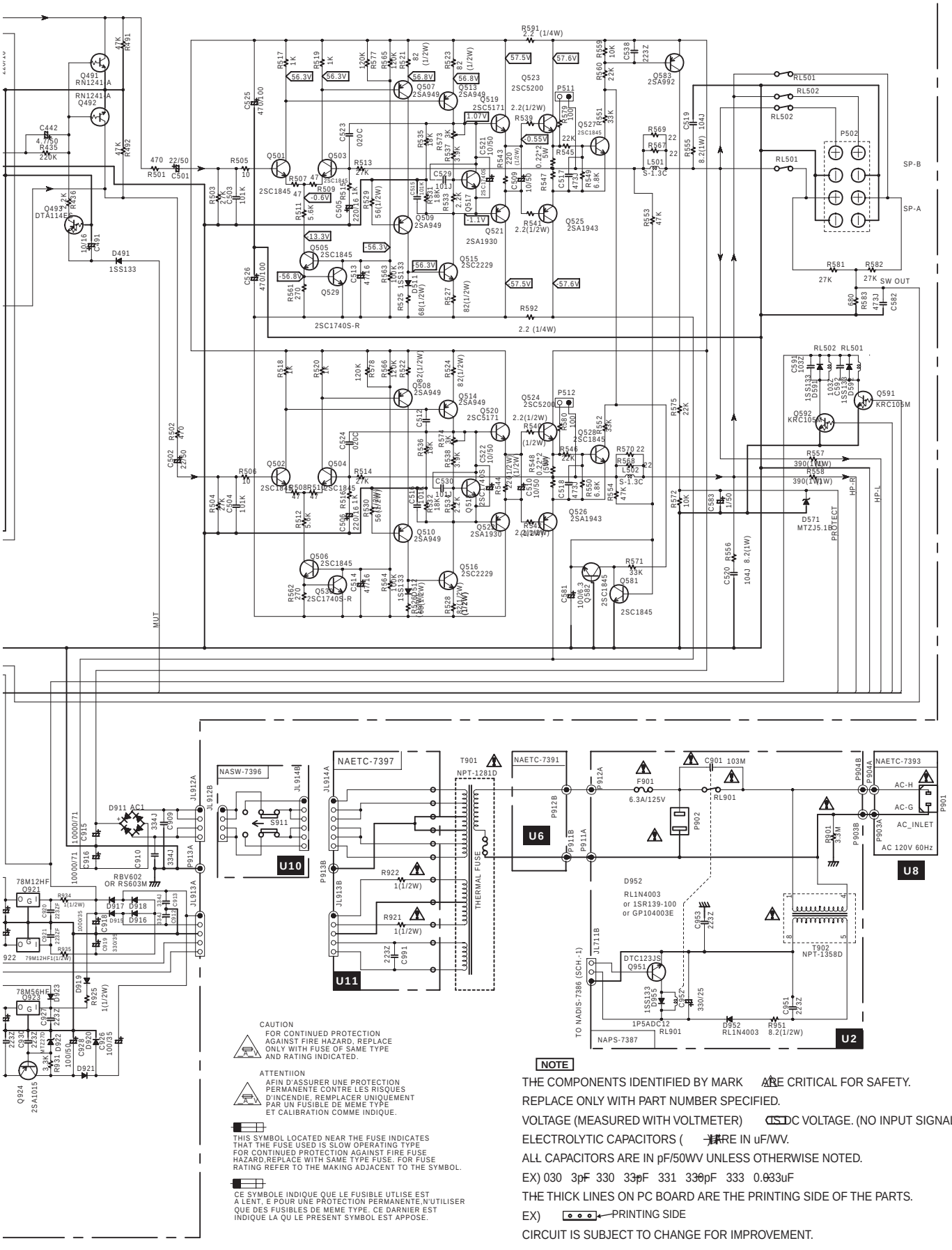
BLOCK DIAGRAM 2



SCHEMATIC DIAGRAM 1



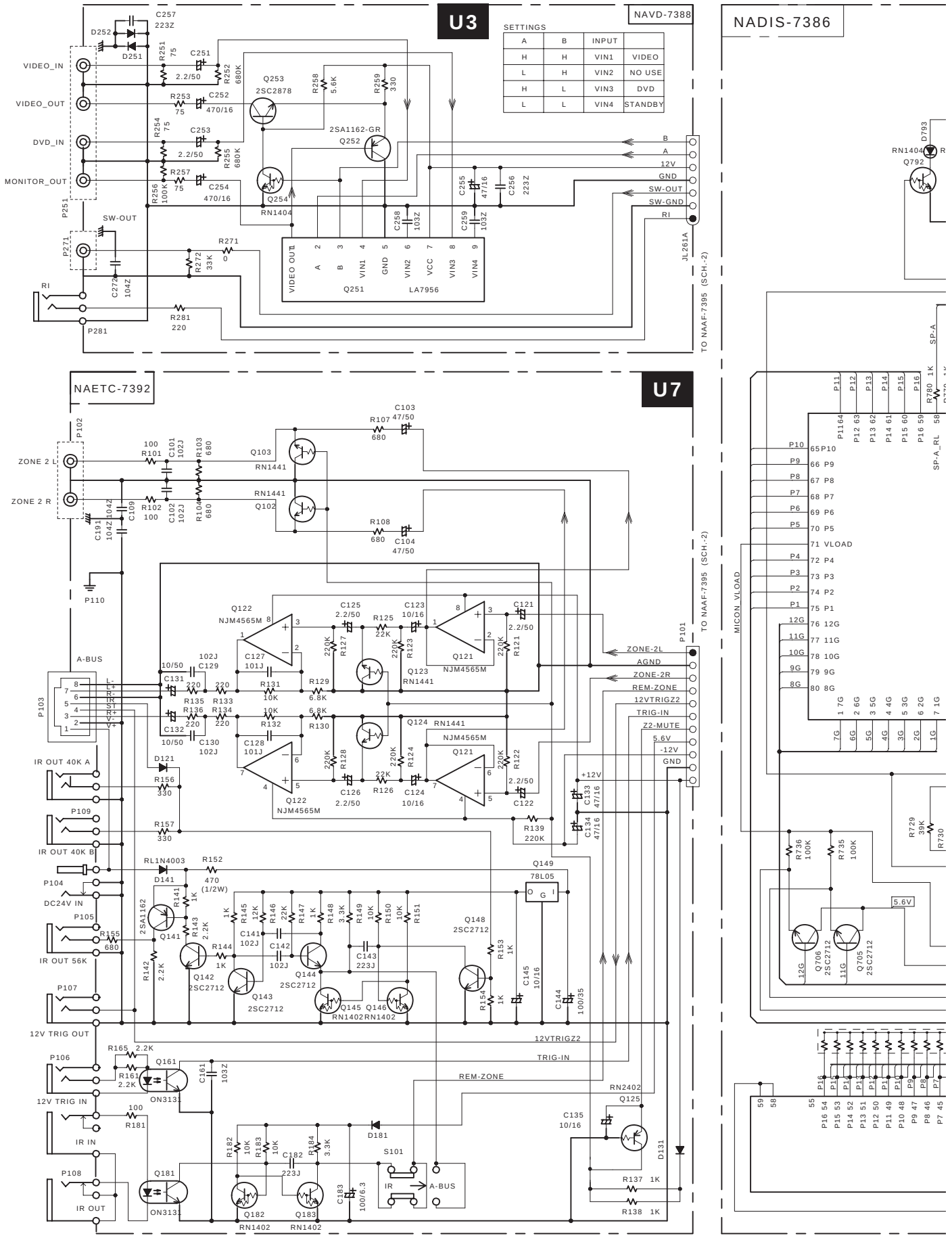
SCHEMATIC DIAGRAM 2



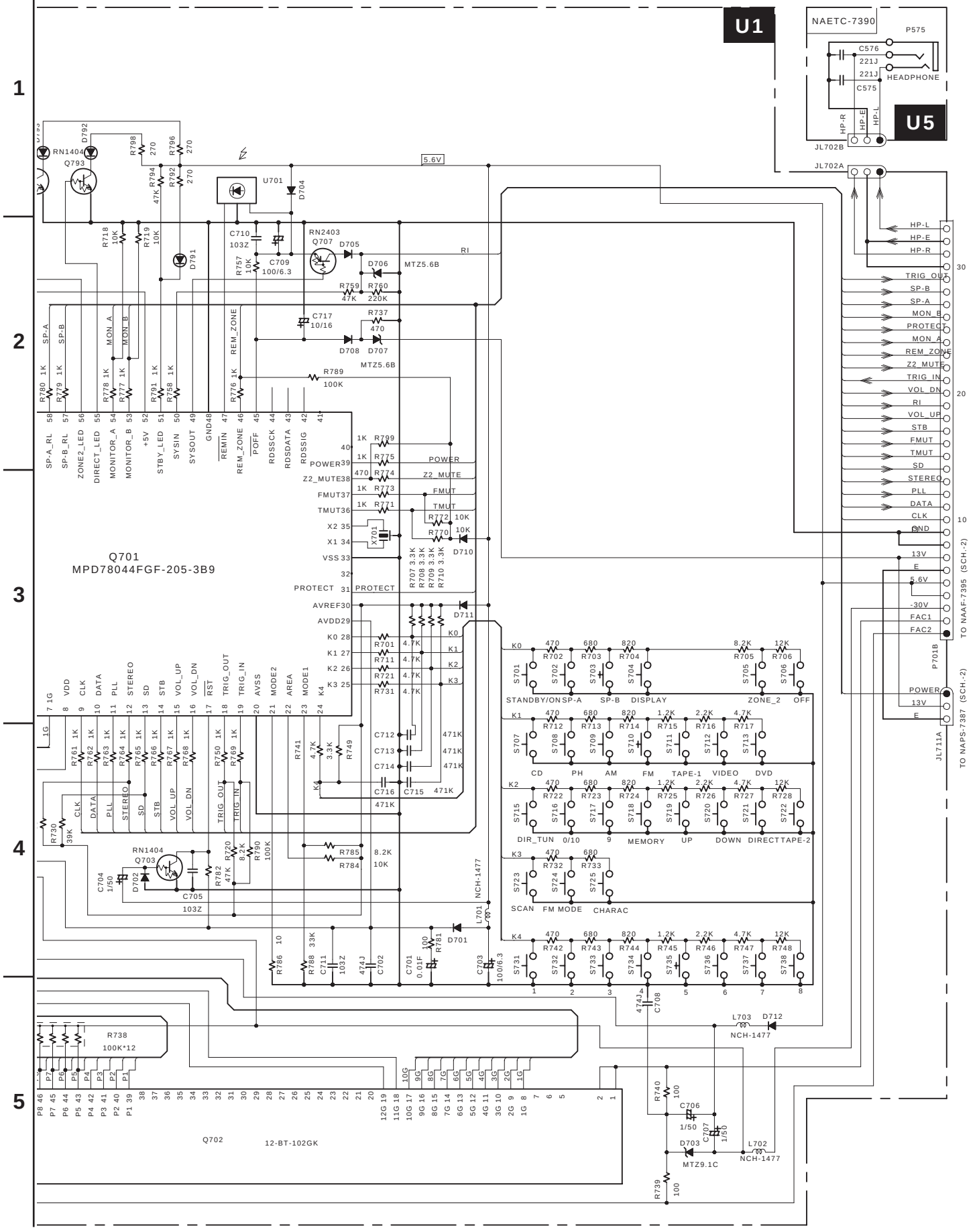
NOTE

THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY.
REPLACE ONLY WITH PART NUMBER SPECIFIED.
VOLTAGE (MEASURED WITH VOLTMETER) DC VOLTAGE. (NO INPUT SIGNAL)
ELECTROLYTIC CAPACITORS ( ) ARE IN uF/WV.
ALL CAPACITORS ARE IN pF/50WV UNLESS OTHERWISE NOTED.
EX) 030 3pF 330 33pF 331 330pF 333 0.033uF
THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
EX) PRINTING SIDE
CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

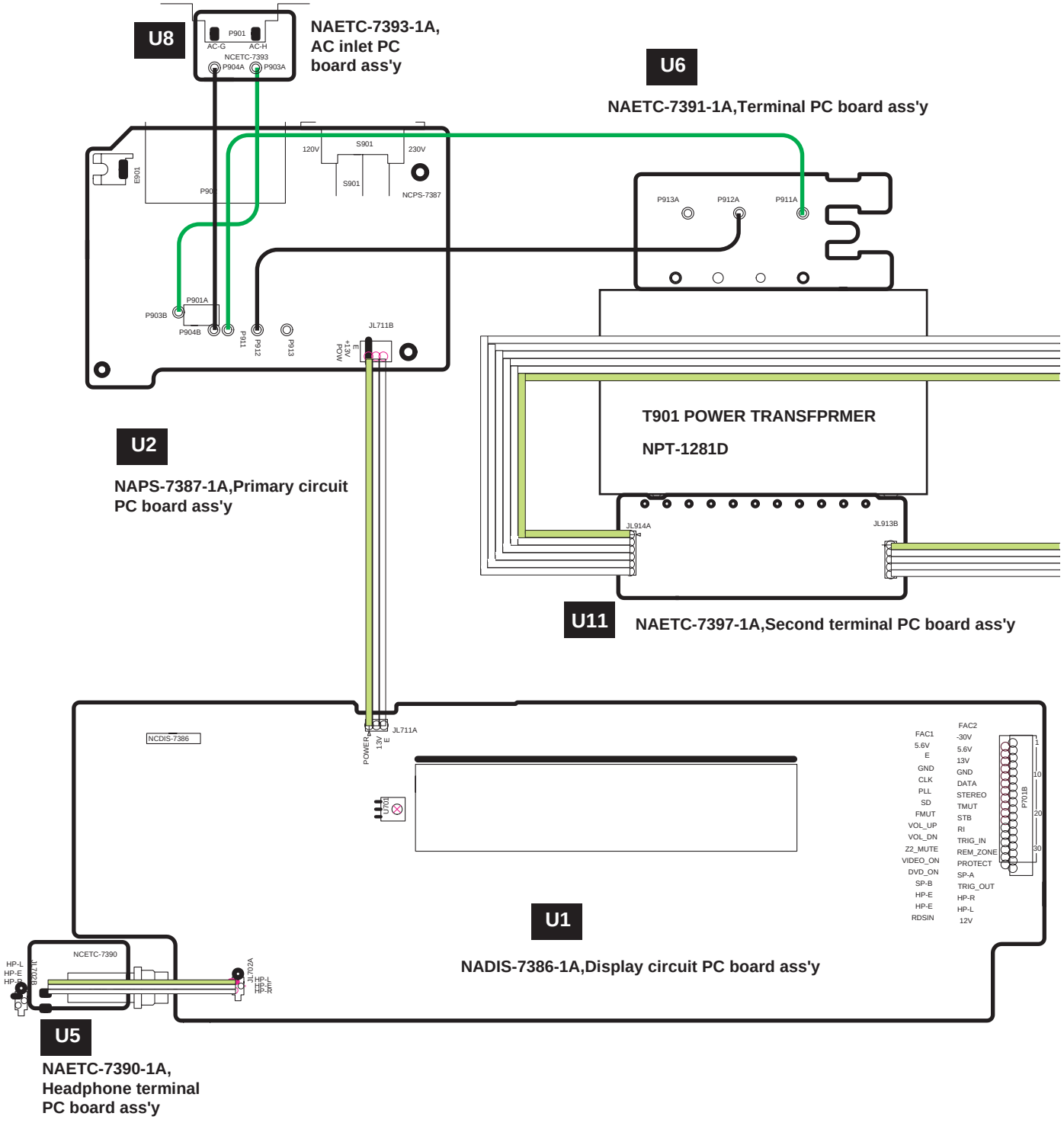
SCHEMATIC DIAGRAM 2-1



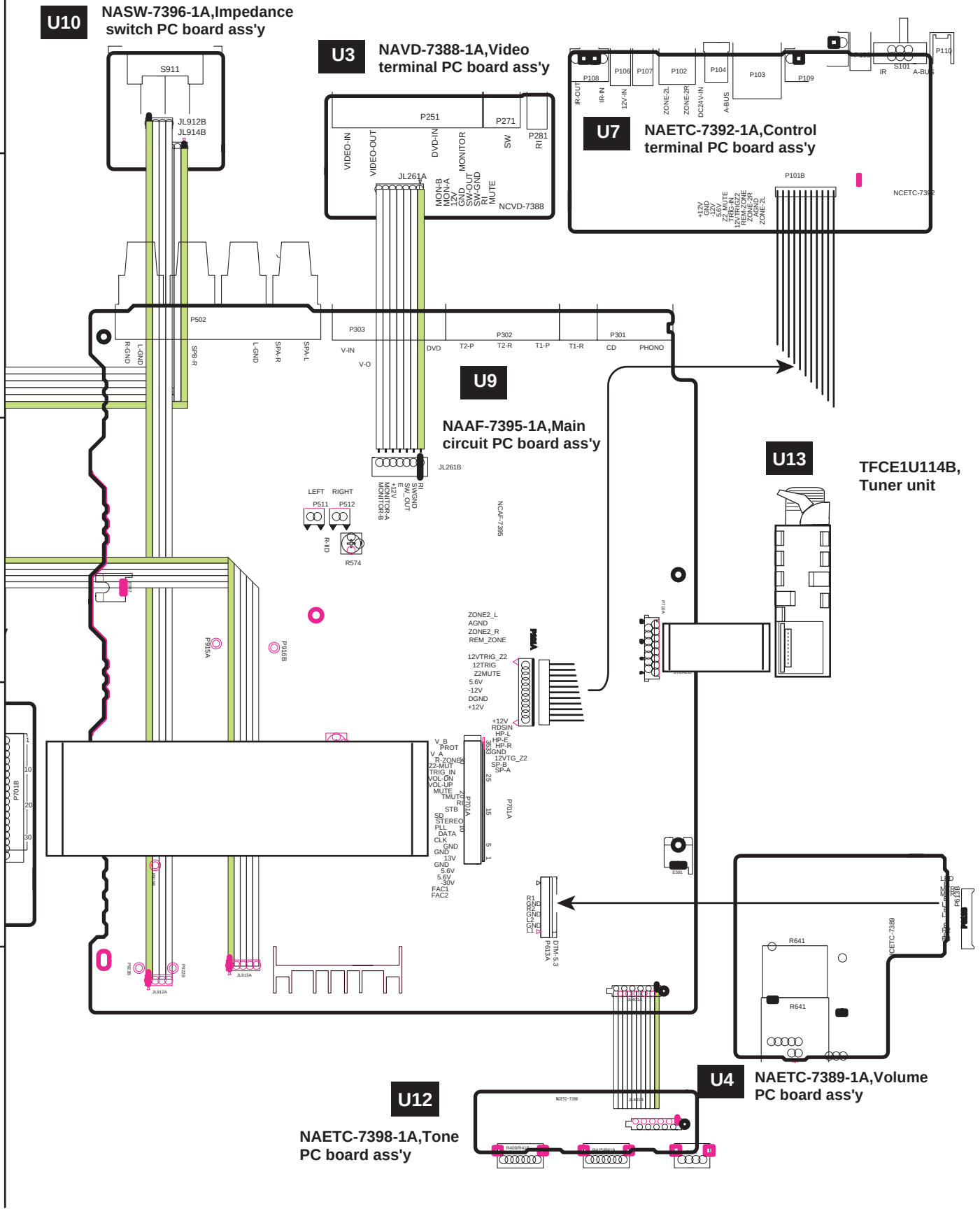
SCHEMATIC DIAGRAM 2-2



WIRING VIEW 1



WIRING VIEW 2



A B C D

PRINTED CIRCUIT BOARD-PARTS LIST

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C162	393341017	100uF,16V,Elect.
C163	394644707	47uF,16V,Elect.
C225	374721015	100pF+/-10%,50V,Plastic
C226	394641007	10uF,16V,Elect.
C303,C304	393341007	10uF,16V,Elect.
C307,C308	394621017	100uF,6.3V,Elect.
C309,C310	374726224	6200pF+/-5%,50V,Plastic
C311,C312	374721824	1800pF+/-5%,50V,Plastic
C313,C314	393341007	10uF,16V,Elect.
C315,C316	394642217	220uF,16V,Elect.
C391,C392	374721015	100pF+/-10%,50V,Plastic
C398	394621017	100uF,6.3V,Elect.
C401~C404	393344707	47uF,16V,Elect.
C405,C406	374721015	100pF+/-10%,50V,Plastic
C407,C408	393344707	47uF,16V,Elect.
C411,C412	393344707	47uF,16V,Elect.
C415,C416	394642217	220uF,16V,Elect.
C433,C434	374721034	0.01uF+/-5%,50V,Plastic
C442	394680477	4.7uF,50V,Elect.
C451,C452	393344707	47uF,16V,Elect.
C453,C454	374721015	100pF+/-10%,50V,Plastic
C455,C456	393344707	47uF,16V,Elect.
C491	394641007	10uF,16V,Elect.
C501,C502	393382207	22uF,50V,Elect.
C503,C504	374721015	100pF+/-10%,50V,Plastic
C505,C506	393342217	220uF,16V,Elect.
C509,C510	394681007	10uF,50V,Elect.
C513,C514	394644707	47uF,16V,Elect.
C515,C516	374721015	100pF+/-10%,50V,Plastic
C517,C518	374724734	0.047uF+/-5%,50V,Plastic
C519,C520	374721044	0.1uF+/-5%,50V,Plastic
C521,C522	394681007	10uF,50V,Elect.
C525,C526	394694717	470uF,100V,Elect.
C529,C530	374721015	100pF+/-10%,50V,Plastic
C581	394621017	100uF,6.3V,Elect.
C582	374724734	0.047uF+/-5%,50V,Plastic
C583	394680107	1uF,50V,Elect.
C909,C910	374723344	0.33uF+/-5%,50V,Plastic
C912,C913	374723344	0.33uF+/-5%,50V,Plastic
C915,C916	3504237	10000uF,71V,Elect.
C918	394661027	1000uF,35V,Elect.
C919	394663317	330uF,35V,Elect.
C922,C923	394681007	10uF,50V,Elect.
C926	394661017	100uF,35V,Elect.
C928	394681017	100uF,50V,Elect.
C932	394681007	10uF,50V,Elect.
	Resistors	
R162	4000195	RXE030,Themistor
R521~R524	443528204	82ohm+/-5%,1/2W,Metal oxide
R525,R526	443526804	68ohm+/-5%,1/2W,Metal oxide
R527,R528	443528204	82ohm+/-5%,1/2W,Metal oxide
R529,R530	443525604	56ohm+/-5%,1/2W,Metal oxide
R539-R542	453530224	2.2ohm+/-5%,1/2W,Metal
R543,R544	443522214	220ohm+/-5%,1/2W,Metal oxide
R547,R548	4000201 or	RF-5EGKR22 or
	4000132	RGC55 0.22,Metal plate
R555,R556	453630824	8.2ohm+/-5%,1W,Metal
R557,R558	443623914	390ohm+/-5%,1W,Metal oxide
R573,R574	5210259	N06HR2KBC,Trimming
R591,R592	4500171F	2.2ohm+/-5%,1/4W,Metal
R934,R935	453530104	1ohm+/-5%,1/2W,Metal
R925	453530104	1ohm+/-5%,1/2W,Metal

CIRCUIT NO.	PART NO.	DESCRIPTION
	Terminals	
P301~P303	25045508 or	NPJ-6PDBL323 or
	25045565	NPJ-6PDBL380
P502	25060307	NTM-8PDMN238
	Relays	
RL501,RL502	25065563,	NRL-2P5A-DC24-129,
	25065563 or	NRL-2P5A-DC24-129 or
	25065618	NRL-2P5A-DC24-158
JL261B	25050271	NSCT-7P99
JL401A	25051095	NSCT-11P882
JL912A	25051108	NSCT-4P895
JL913A	25051109	NSCT-5P896
P701A	25051840	NSCT-33P1627
P710A	25051822,	NSCT-15P1609,
	25052024 or	NSCT-15P1811 or
	25052211	NSCT-15P2108
	Plugs	
P101A	25055155	NPLG-11P139
P511,P512	25055038	NPLG-2P29
P613A	25055706	NPLG-10P662
Q164A,Q922A	27160145-1	RAD-51,Heatsink
Q921A	27160209	RAD-67,Heatsink
P910	27190540-1	Holder,clamp
Q164B,Q921B	838430107	3TTB+10S(BC),Self-tapping screw
Q922B	838430107	3TTB+10S(BC),Self-tapping screw

Impedance switch PC board (NASW-7396-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
S911	25065437	NSS-22157P
JL912B	25051108	NSCT-4P895
JL914B	25051110	NSCT-6P897

Second terminal PC board (NAETC-7397-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistors	
R921,R922	453530104	⚠ 1ohm+/-5%,1/2W,Metal
	Sockets	
JL914A	25051110	NSCT-6P897
JL913B	25051109	NSCT-5P896

Tone PC board (NAETC-7398-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C421,C422	374722234	0.022uF+/-5%,50V,Plastic
	Resistors	
R393	5104288	N11RLC250KWT20Z,Variable
R409,R415	5104356	N14RLC100KWT20Z,Variable
	Socket	
JL401B	25051095	NSCT-11P882

NOTE:THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

PRINTED CIRCUIT BOARD-PARTS LIST

CAUTION: Replacement for transistor of mark * , if necessary must be made from the same beta group (h_{FE}) as the original type.

Control terminal PC board (NAETC-7392-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q121,Q122	22241383R2 or 22240489R1NE	NJM4565M-D or MPC4570G2-T1(MST)
Q149	222780053	78L05
	Transistors	
Q102,Q103	2215410R2	RN1441
Q123,Q124	2215410R2	RN1441
Q125	2216220R2 or 2214530R2	KRA102S or RN2402
Q141	2216185R2 or 2214375R2	KTA1504-GR or 2SA1162-GR
Q142~Q144	2216175R2 or 2213145R2	KTC3875-GR or 2SC2712-GR
Q145,Q146	2216190R2 or 2214470R2	KRC102S or RN1402
Q148	2216175R2 or 2213145R2	KTC3875-GR or 2SC2712-GR
Q182,Q183	2216190R2 or 2214470R2	KRC102S or RN1402
	Diodes	
D121,D131	223234R2 or	1SS352 or
D181	223269R2	1SS355
D141	22380260, 22380032 or 22380035	RL1N4003, 1SR139-100 or GP104003E
	Photo couplers	
Q161,Q181	24120043, 24120044 or 24120045	ON3131, ON3131-R or ON3131-S
	Capacitors	
C103,C104	393384707	47uF,50V,Elect.
C121,C122	393380227	2.2uF,50V,Elect.
C123,C124	393341007	10uF,16V,Elect.
C125,C126	393380227	2.2uF,50V,Elect.
C131,C132	393381007	10uF,50V,Elect.
C133,C134	394644707	47uF,16V,Elect.
C135,C145	394641007	10uF,16V,Elect.
C143,C182	374722234	0.022uF+/-5%,50V,Plastic
C144	394661017	100uF,35V,Elect.
C183	394621017	100uF,6.3V,Elect.
	Resistors	
R152	443524714	470ohm+/-5%,1/2W,Metal oxide
	Terminals	
P102	25045692	NPJ-2PDWR489
P104	25045598	HEC0470-01-630
P105~P107	25045504	NPJ-1PDBL319
P108,P109	25045647	HSJ1002-01-1020
	Switches	
S101	25065286	NSS-22112
P101	2002A392225	NSAS-22P0874
P103	25052662	NSCT-8P2558

AC inlet PC board (NAETC-7393-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
P901	25055960	⚠ NPLG-2P913

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

Main circuit PC board (NAAF-7395-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q301	222502	NJM4558D-X
Q302	22240798	TC9162AN
Q303	22240829	TC9274N-008
Q401~Q403	22240250	NJM2068L-D
Q481	22240239	TA7291S
Q921	222780125	78M12HF
Q922	222790125	79M12HF
Q923	222780565JRC	78M56(NJM78M56FA)
	Transistors	
Q163	2215830 or 2213640	KRC105M or DTC123JS
Q164	2203584	KTD2058-Y
Q491,Q492	2213631 or 2213632	RN1241-A or RN1241-B
Q493	2215770 or 2213510	KRA102M or DTA114ES
Q501~Q506	2215896,	* KTC3200-BL,
Q527,Q528	2215895,	* KTC3200-GR,
Q581,Q582	2210755,	* 2SC1775A-E,
	2210756,	* 2SC1775A-F,
	2211732 or	* 2SC1845-F or
	2211733	* 2SC1845-E
Q507~Q510	2215843,	KTA1024-O,
Q513,Q514	2211353 or 2215844	2SA949-O or KTA1024-Y
Q515,Q516	2215853, 2211633 or 2215854	KTC3206-O, 2SC2229-O or KTC3206-Y
Q517,Q518	2215864,	KTC3199-GR,
Q529,Q530	2213284 or 2213285	2SC1740S-R or 2SC1740S-S
Q519,Q520	2203434 or 2203010	KTD2061-Y or 2SC5171
Q521,Q522	2203424 or 2203000	KTB1369-Y or 2SA1930
Q583	2215885, 2211792 or 2211793	KTA1268-GR, 2SA992-F or 2SA992-E
Q591,Q592	2215830 or 2213640	KRC105M or DTC123JS
Q924	2211455 or 2215975	2SA1015-GR or KTA1266-GR
	Diodes	
D201	223234R2 or 223269R2	1SS352 or 1SS355
D915~D921	22380260, 22380032 or 22380035	RL1N4003, 1SR139-100 or GP104003E
D161	224451203	MTZ12C
D491	223163 or 223205	1SS133 or 1SS270A
D511,D512	223163 or	1SS133 or
D591,D592	223205	1SS270A
D571	224470512	MTZJ5.1B
D922	224472704	MTZJ27D
D923	223163 or 223205	1SS133 or 1SS270A
	Coils	
L501,L502	231176S	S-1.3C

PRINTED CIRCUIT BOARD-PARTS LIST 1

DISPLAY CIRCUIT PC BOARD (NADIS-7386-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	FL tube	
Q702	212157	12-BT-102GK
	ICs	
Q701	22241775R3	MPD78044FGF-205-3B9
	Remote sensor	
U701	241337	PIC-37043TE2
	Transistors	
Q703	2214490R2 or 2216210R2	RN1404 or KRC104S
Q705,Q706	2216175R2 or 2213145R2	KTC3875-GR or 2SC2712-GR
Q707	2214540R2 or 2216230R2	RN2403 or KRA103S
Q792,Q793	2214490R2 or 2216210R2	RN1404 or KRC104S
	Diodes	
D701,D702	223234R2 or	1SS352 or
D704,D705	223269R2	1SS355
D703	224550910R2 or 224660914R2	UDZS9.1B or HZU9.1B
D706,D707	224550560R2 or 224660564R2	UDZS5.6B or HZU5.6B
D708	223234R2 or	1SS352 or
D710~D712	223269R2	1SS355
D791	225290	SEL4110R
D792,D793	225292D	SEL4310G-D
	Coils	
L701~L703	231237K220R2	NCH-1477
	Oscillator	
X701	3010163	CST4.19MGW
	Capacitors	
C701	3000120 or 3000121T	FMC0H104Z or SCDA5R5104A,Super
C702,C708	375524744	0.47uF+/-5%,50V,Plastic
C703,C709	353721019	100uF,6.3V,Elect.
C704	353780109	1uF,50V,Elect.
C706,C707	353780109	1uF,50V,Elect.
C717	394641007	10uF,16V,Elect.
S701~S713	25035699	NPS-111-S662
S715~S725	25035699	NPS-111-S662
S731~S738	25035699	NPS-111-S662
JL702A	25051087	NSCT-3P874
JL711A	25051107	NSCT-3P894
P701B	25051877	NSCT-33P1664
Q702A	27190989A	Holder, tube

Primary circuit PC board (NAPS-7387-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q951	2215830 or 2213640	KRC105M or DTC123JS
	Diodes	
D952	22380260, 22380032 or 22380035	RL1N4003, 1SR139-100 or GP104003E
D955	223163 or 223205	1SS133 or 1SS270A
	Power transformer	
T902	2301381,	⚠ NPT-1358D,
	2300670A or	⚠ NPT-1111D or
	2301258	⚠ NPT-1294D
	Capacitors	
C901	3500196S	⚠ RE275V-103M,IS
C952	394653317	330uF,25V,Elect.
	Resistors	
R901	431533355 or 4000206S	RC1/2GFKUL-3.3M or RD1/2SPH-3.3M Solid
	Fuse holders	
F901A,F901E	25052133	⚠ NSCT-1P2031
	Relay	
RL901	25065561,	⚠ NRL-1P5A-DC12-127,
	25065515 or	⚠ NRL-1P5A-DC12-096 or
	25065526	⚠ NRL-1P5A-DC12-102
	Sockets	
JL711B	25050267	NSCT-3P95
P902	25051571	⚠ NSCT-2P1358

Video terminal PC board (NAVD-7388-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q251	22241759	LA7956
	Transistors	
Q252	2216185R2 or 2214375R2	KTA1504-GR or 2SA1162-GR
Q253	2212285 or 2212286	2SC2878-A or 2SC2878-B
Q254	2214490R2 or 2216210R2	RN1404 or KRC104S
	Diodes	
D251,D252	223234R2 or 223269R2	1SS352 or 1SS355
	Capacitors	
C251,C253	394680227	2.2uF,50V,Elect.
C252,C254	394644717	470uF,16V,Elect.
C255	394644707	47uF,16V,Elect.
P251	25045507 or 25045566	NPJ-4PDYE322 or NPJ-4PDYE381
P271	25045477	NPJ-1PDBL295
P281	25045504	NPJ-1PDBL319
	Sockets	
JL261A	25051111	NSCT-7P898

Volume PC board (NAETC-7389-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Resistors	
R641	5104334	N16RGL100KBT25F,Variable
P613B	25051235	NSCT-10P1025

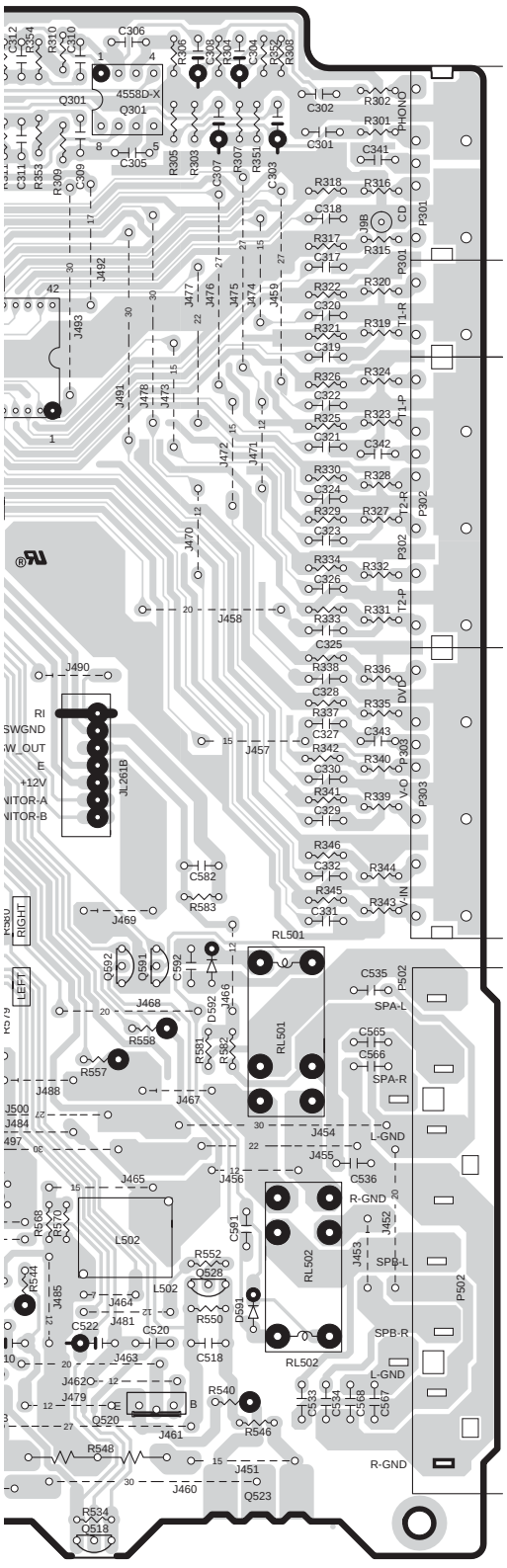
Headphone terminal PC board (NAETC-7390-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
P575	25045257	YKB26-5138
JL702B	25051087	NSCT-3P874

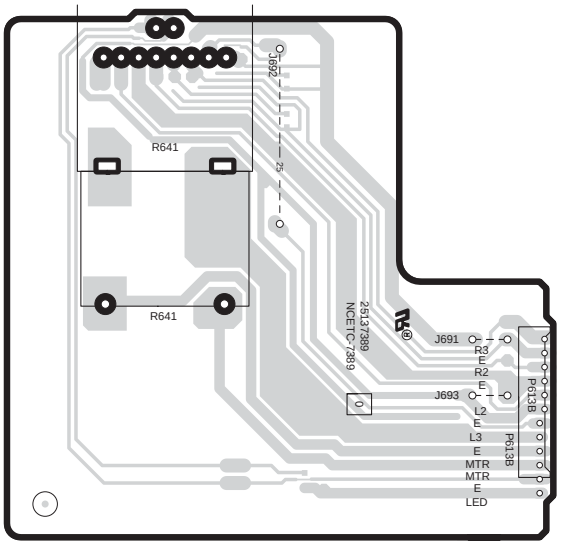
NOTE:THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

CAUTION:Replacement for transistor of mark * , if necessary must be made from the same beta group (**hFE**) as the original type.

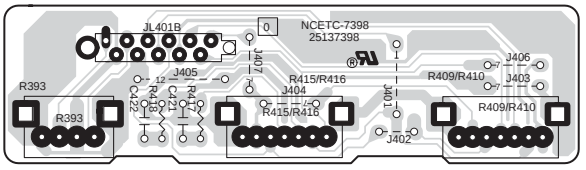
PRINTED CIRCUIT BOARD VIEW FROM SOLDERING SIDE 3-1



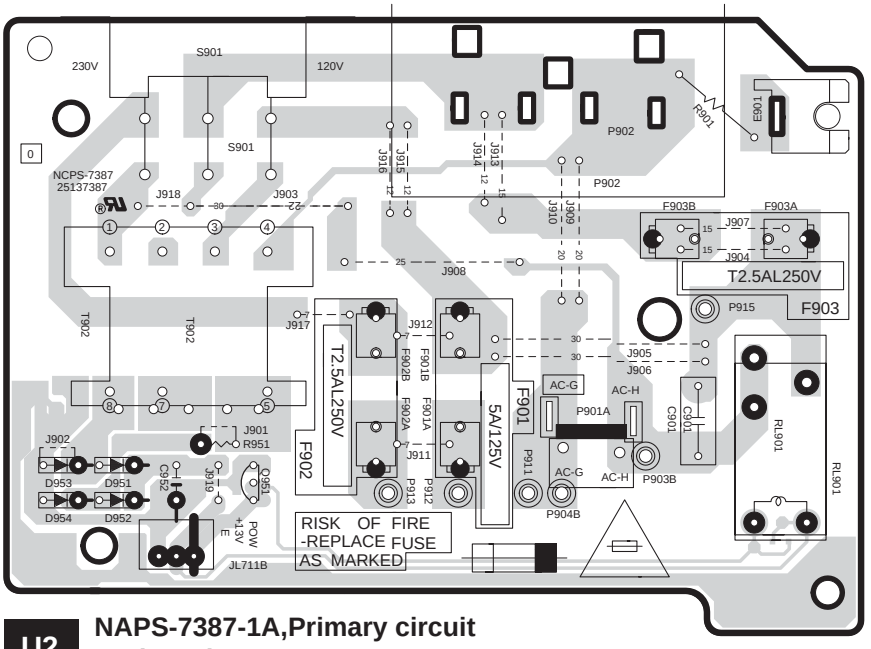
U9 NAAF-7395-1A,Main circuit PC board



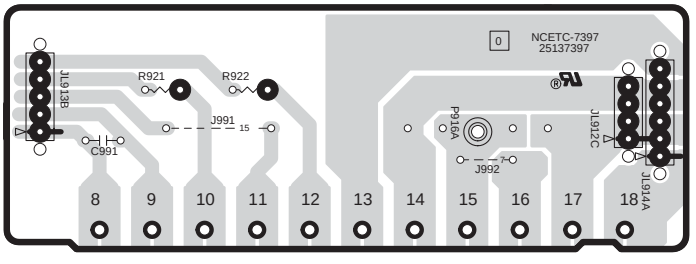
U4 NAETC-7389-1A,Volume PC board



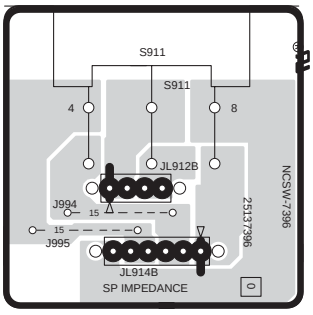
U12 NAETC-7398-1A,Tone PC board



U2 NAPS-7387-1A,Primary circuit PC board

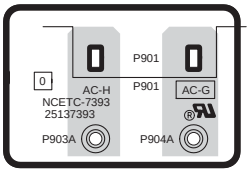


U11 NAETC-7397-1A, Second terminal PC board



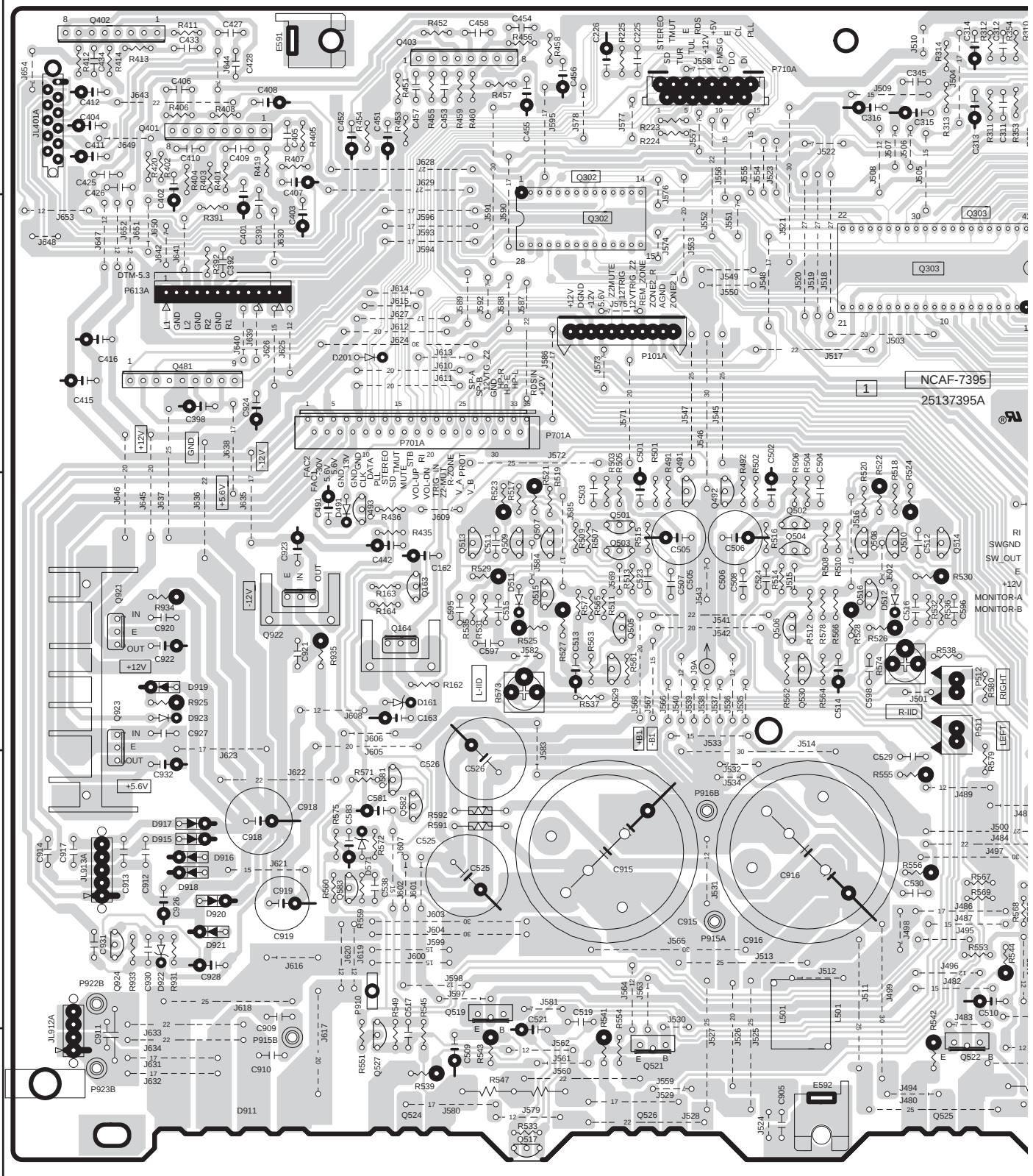
U10 NASW-7396-1A, Impedance switch PC board

U8



NAETC-7393-1A, AC inlet PC board

PRINTED CIRCUIT BOARD VIEW FROM SOLDERING SIDE 3-1



A B C D

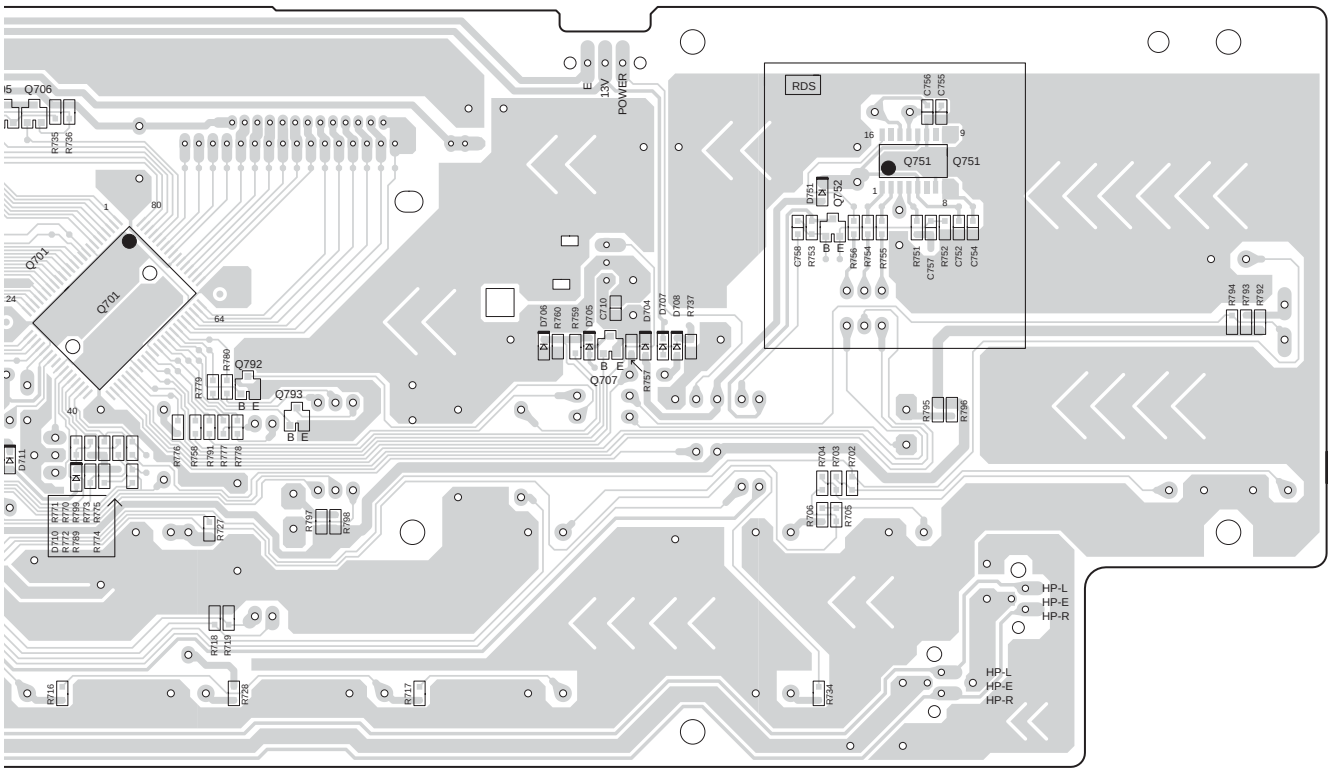
PRINTED CIRCUIT BOARD VIEW FROM SOLDERING SIDE 2-2

Soldering Side

1

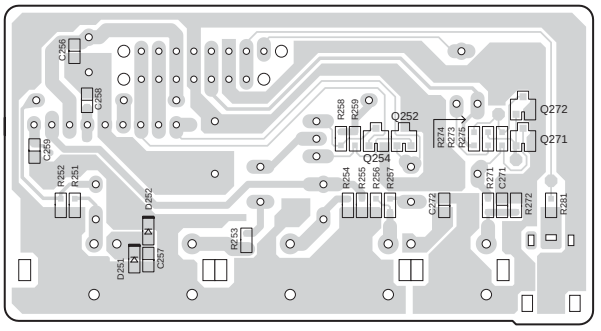
2

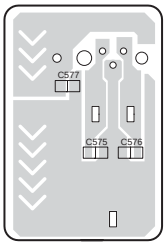
3



U1

4





U3 **NAVD-7388-1A,Video terminal PC board**

5

A B C D

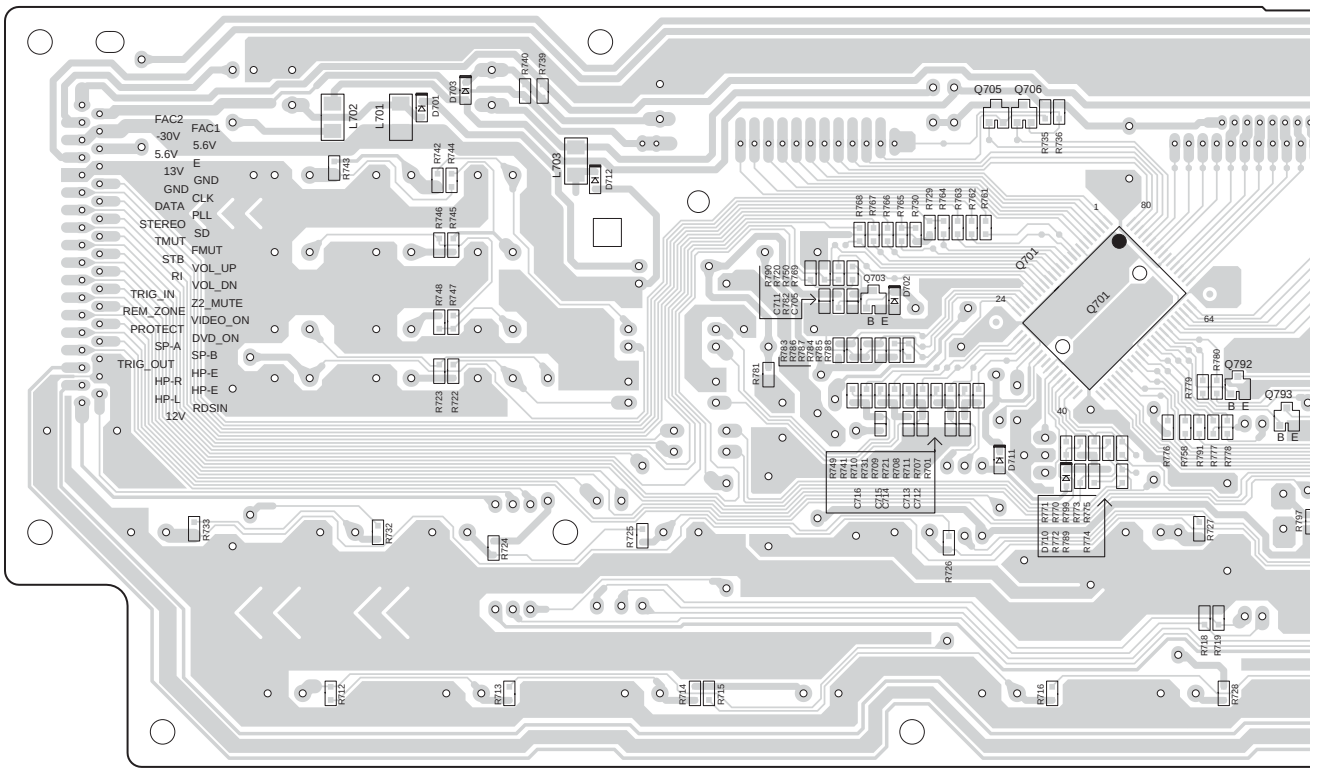
PRINTED CIRCUIT BOARD VIEW FROM SOLDERING SIDE 2-1

Soldering Side

1

2

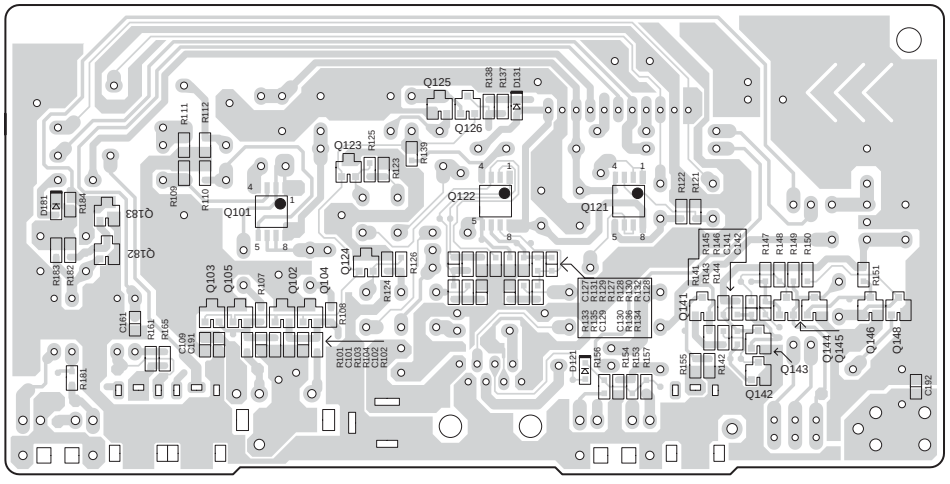
3



U1

4

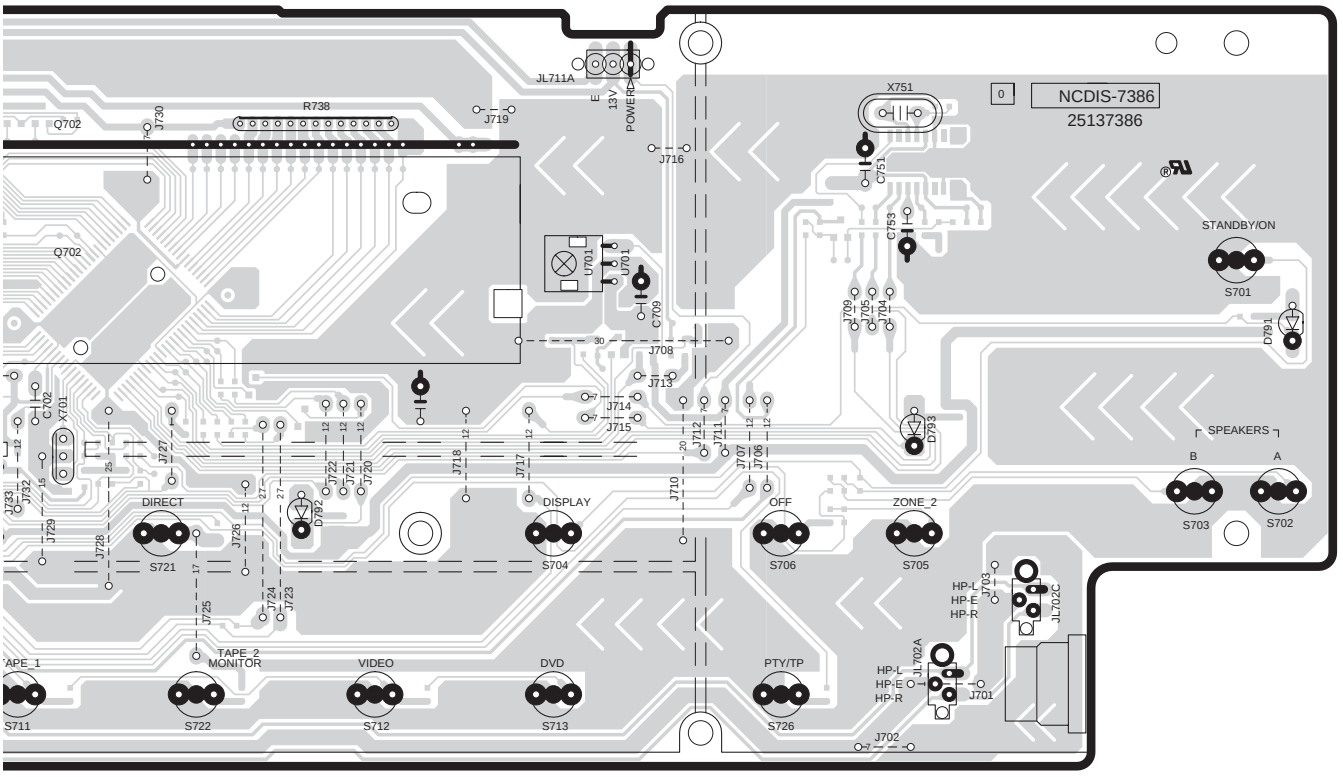
5



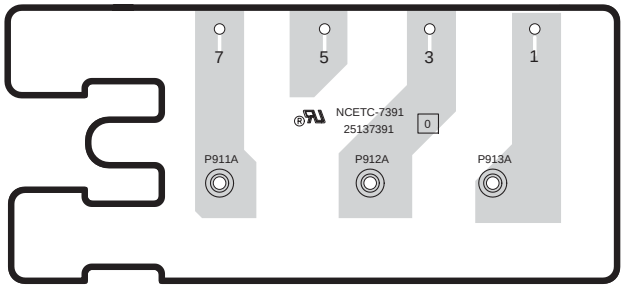
U7 **NAETC-7392-1A,Control terminal PC board**

PRINTED CIRCUIT BOARD VIEW FROM SOLDERING SIDE 1-2

Component Side

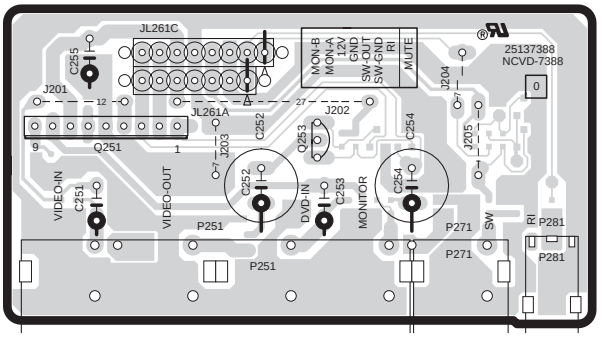


U1 **NADIS-7386-1A,Display circuit PC board**



U6

NAETC-7391-1A,Terminal PC board

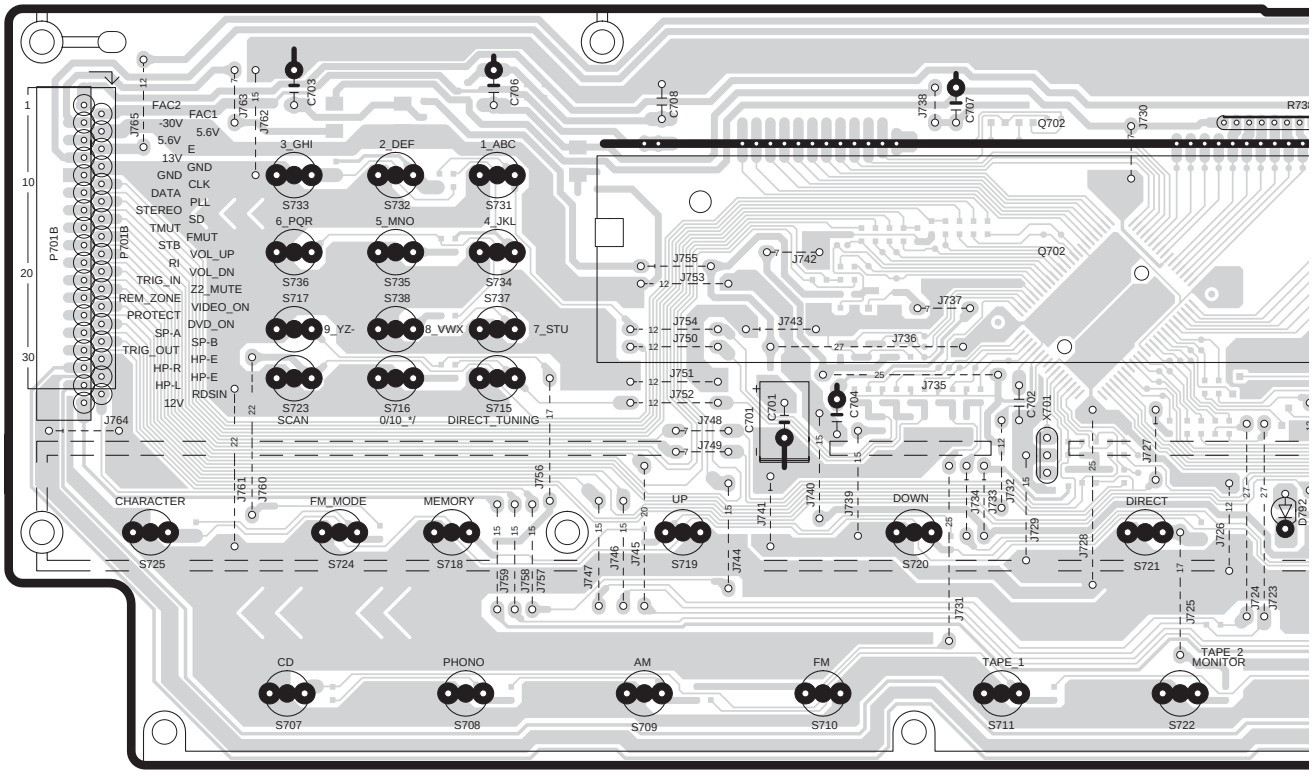


U3 **NAVD-7388-1A,Video terminal PC board**

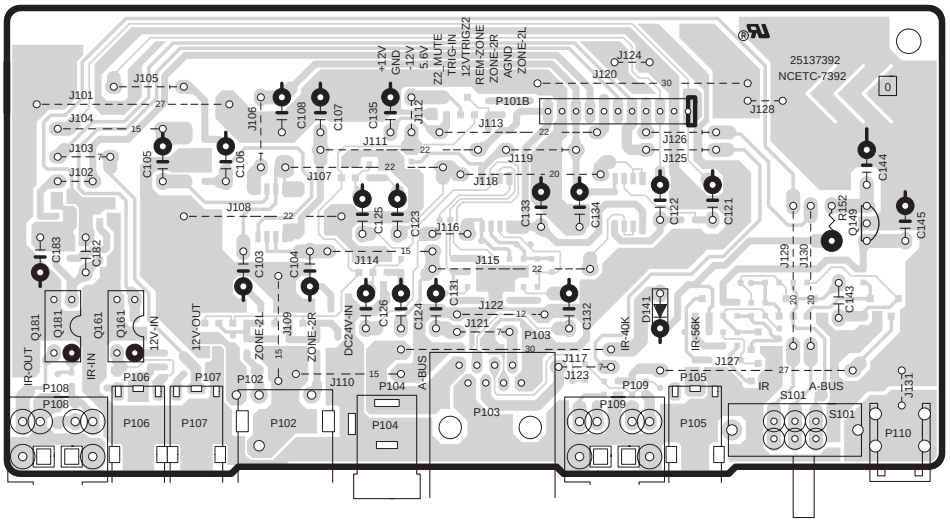
A B C D

PRINTED CIRCUIT BOARD VIEW FROM SOLDERING SIDE 1-1

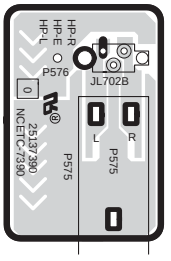
Component Side



U1 **NADIS-7386-1A,Display circuit PC board**



U7 **NAETC-7392-1A,Control terminal PC board**



U5

NAETC-7390-1A, Headphone terminal PC board